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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,092	01/31/2002	Ji-Wook Youn	2013P014	6007

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EXAMINER

LAUCHMAN, LAYLA G

ART UNIT PAPER NUMBER

2877

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/066,092	Applicant(s) YOUN ET AL.	
	Examiner L. G. Lauchman	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-5 is/are rejected.
- 7) ☒ Claim(s) 6-8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☒ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
     a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                 | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ | 6) <input type="checkbox"/> Other:  |

### DETAILED ACTION

The abstract of the disclosure is objected to because the abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. Correction is required. See MPEP § 608.01(b).

### *Claim Objections*

Claims 1, 2, 6, and 7 are objected to because of the following informalities:

In Claim 1, line 5, the wording "the 1<sup>st</sup> multi-channel beam" should be replaced with --a 1<sup>st</sup> multi-channel beam--, and in line 7, "the 2<sup>nd</sup> multi-channel beam" should be replaced with --a 2<sup>nd</sup> multi-channel beam--. Examiner also suggests to place the second limitation of Claim 1 "an optical collimation and focusing unit for..." after the third limitation "a diffraction and reflection unit..", in order to clarify the structure of the claimed apparatus.

In Claim 2, line 3, the wording "the 3<sup>rd</sup> multi-channel beam" should be replaced with --a 3<sup>rd</sup> multi-channel beam--, and in line 11, the wording "the 1<sup>st</sup> predetermined angle" should be replaced with --a 1<sup>st</sup> predetermined angle--. In line 11, the third limitation, "an optical detection unit..." should be --an optical reflection unit-- (see specifications, page 5, lines 9-18)

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Examiner suggests rewriting the third limitation of Claim 2 since it appears to be a literal translation from a foreign language.

In Claim 6, line 4, the wording "the 1<sup>st</sup> multi-channel beam" should be replaced with --a 1<sup>st</sup> multi-channel beam--, and in line 7, "the 2<sup>nd</sup> multi-channel beam" should be replaced with --a 2<sup>nd</sup> multi-channel beam--, and in line 10, "the optical signal-to-noise ratio" should be replaced with -- an optical signal-to-noise ratio--.

In Claim 7, line 2, the wording "the 3<sup>rd</sup> multi-channel beam" should be replaced with --a 3<sup>rd</sup> multi-channel beam--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over He et al (US 6,636,306).

He et al teach an optical spectrum analyzer, comprising:

an optical input I1, I2 for controlling the spot size of an inputted multi-channel optical signal LR, LT and generating a first multi-channel beam col.4, lines 11-49);

a diffraction DG and reflection unit RAM for diffracting and reflecting the 1<sup>st</sup> collimated by lens L1 multi-channel beam, generating a 2<sup>nd</sup> multi-channel beam, which is divided by wavelength and is parallel with the 1<sup>st</sup> collimated multi-channel beam (see Fig. 1, col.5, lines 51067, col. 6, lines 1-27);

an optical detection unit D, MP for measuring the intensity of the 2<sup>nd</sup> multi-channel beam (col. 6, lines 28-43) by wavelength, which focused by lens L2.

The patent does not disclose one optical collimation and focusing unit for collimation the 1<sup>st</sup> beam and focusing the 2<sup>nd</sup> beam, which is divided by wavelength. Instead of one unit, the patent discloses 2 optical units - L1 and L2 - performing the functions of collimating and focusing the 1<sup>st</sup> and the 2<sup>nd</sup> beams. It would have been obvious to one of ordinary skill in the art at the time of the invention to use one optical unit instead of two units L1 and L2, since providing one optical unit for collimating and focusing light would achieve a compact design and reduce the size of the apparatus.

Claims 2, 3, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over He et al (US 6,636,306) as applied to Claim 1 above, further in view of White et al (US 3,069,967).

As to Claim 2, the patent '306, teaches all as applied to Claim 1 above, wherein the diffraction and reflection unit, comprises: a wavelength divider DG for generating a 3<sup>rd</sup> multi-channel beam (see Fig. 1, beams between DG and RAM) by dividing the beam collimated by wavelength by the optical collimation unit, and generating the 2<sup>nd</sup> beam that is positioned in parallel with the 1<sup>st</sup> beam on the same plane by dividing again the beam by wavelength,

an optical reflection unit RAM being rotated at predetermined angles (see col.6, lines 12-21), reflecting the 3<sup>rd</sup> beam.

The patent '306 does not teach a polarization converted for changing polarization of the 3<sup>rd</sup> beam.

The patent '967 to White et al teach an monochromator employing twice diffracted light see (col. 2, lines 33-56, Figs. 6,7,8). White et al suggest using two polarizers ( not shown in the drawings), or a material that rotates the plane of polarized light 90 degrees, positioned in front of the reflector so that the polarization of the light that passes through it to be so oriented that it is transmitted by the second polarized device. Therefore, only that part of radiation that has passed through the reflector can emerge from the system. (See col. 6, lines 67-75, and col. 7, lines 1-9). It would have been obvious to one skilled in the art to place a polarization converter in the invention of He et al between the diffraction grating DG and reflection unit RAM, since the

polarization converted would reduce the polarization dependence loss of the diffraction grating.

As to Claim 3, the patents to He et al and White et al teach all as applied to claim 2 above, and in addition the wavelength divider in the patent '306 is a diffraction grating DG designed to divide and diffract the multi-channel beam incident on the grating.

As to Claim 4, the patents to He et al and White et al teach all as applied to claim 3 above, and in addition, by controlling the rotating angle of RAM, the beam inputted from L1 to DG and the beam inputted from RAM to DG are positioned nearest to the center of DG, and the distance between RAM and DG is controlled by changing the angle of rotation of RAM.

As to Claim 5, the patents to He et al and White et al teach all as applied to claim 2 above, in addition White discloses that the material should rotate the plane of polarized light 90 degrees. A quarter plate would change the state of polarization of the incident beam by 45 degrees, and then it will change the state of polarization of the reflected beam by 45 degrees again. As a result, the state of polarization of the beam incident on the grating 8 (see Fig. 7) will be changed by 90 degrees. Therefore, the material placed in front of the reflector in the invention of White is a quarter wave plate that converts the state of polarization of the beam by 45 degrees.

***Allowable Subject Matter***

Claims 6-8 would be allowable if rewritten to overcome the objections set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As to Claim 6, the prior art of record taken along or in combination, fails to disclose or render obvious measuring an optical signal-to-noise ration by measuring the optical intensity corresponding to each wavelength and an amplified spontaneous emission (ASE) noise strength at the point between optical signals, in combination with the rest of the limitations of the claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

***Conclusion***

Papers related to this application may be submitted to Technology Center 2800 by facsimile transmission. Papers should be faxed to TC 2877 via the PTO Fax Center located in CP4-4C23. The faxing of such papers must conform with the notice



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published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Center number is (703) 872-9306.

If the Applicant wishes to send a Fax dealing with either a Proposed Amendment or for discussion for a phone interview then the fax should:

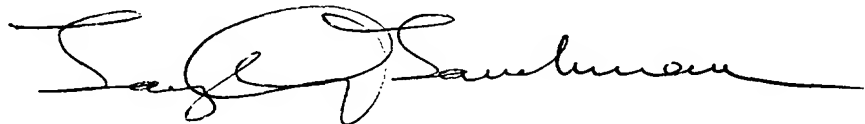
a) Contain either the statement "DRAFT" or "PROPOSED AMENDMENT" on the Fax Cover Sheet; and

b) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to L. G. Lauchman whose telephone number is (703) 305-0071.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read 'L. G. Lauchman', with a long horizontal line extending to the right.

L. G. Lauchman  
Patent Examiner  
Art Unit 2877  
1/10/04/lgl